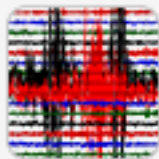




PAGER

Estimate of population exposure



Seismogram Displays

Current seismic activity



ShakeMaps

Maps depicting shaking intensity



Earthquake Animations

Past 7-days



Earthquake Notifications

Sign up for free emails



KML / RSS Feeds

Google Earth and RSS feeds and data

Seismic Design Maps, Data, and Tools for Engineers



Tools allowing users to determine ground motion values at a site for various building code reference documents. [More...](#)

[Buildings](#)

[Bridges](#)

Seismic Hazard Maps and Data



Probabilistic and scenario ground-motion hazard maps, input and output data, and documentation. [More...](#)

Collaborative Earthquake Products

J. Gomberg & Many Others

Why?

2009 Pierce County 'ShakeNQuake' Exercise

Earthquake Hazards Program (EHP) products
BARELY used!




Ditto for other exercises.


EHP products NOT used to guide response.
Even in California!

What's going on?





Pierce County
Emergency Management



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 Home Page

Emergency
 Management
 Division

TRAINING AVAILABLE TO PIERCE COUNTY

Pierce County Emergency Management offers a variety of training for our First Responders, Citizen Corps members, and High Risk Population agencies. Check the links below for information specific to each class.

If you would like 'breaking news' sent directly to you when a new class is posted, sign up for Twitter from Pierce County at: www.twitter.com/pierceco

New Training Available

Pierce County's TEW Training Committee meets monthly to allocate Homeland Security grant funds to specific training identified for one of the following areas:

- Critical Infrastructure Protection
- Citizen Preparedness & Participation
- Communications Interoperability

Our intent is to have as many from Pierce County as possible register early. Then a date is set that opens any available seats to our out-of-county partners. Those partners may register at any time and will be notified if seats are available. Registration information is included with each class description.


AUGUST 2010 CLASSES - ** indicates new classes

- Aug 15-20 - [Ntl Institute of Justice Technology for Law Enforcement](#) (Pilot)
- Aug 15-20 - [Ldrship Strategies for Community Risk Reduction](#)
- Aug 16-17 - [CISM: Line of Duty Death - Preparing the Best for the Worst](#)
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- Aug 19-20 - [MGT-344 Adv Incident Mgmt/Unified Command](#)
- Aug 26 - [HazMat IQ 4-Step System](#)
- Aug 27 - Quarterly Type III IMT Meeting


Where can I find...
[Economic Resiliency](#)
 Resource for businesses
[Are you prepared?](#)
 Resource for residents
[PC-NET](#)
 A neighborhood approach
 to emergency
 preparedness
[Citizen Corps](#)
 Uniting Communities,
 Preparing the Nation
[Explorer Search & Rescue](#)

[Training](#)
[Plans](#)
[LEPC](#)

How can a few geeks reach numerous public agencies & the private sector?



Pierce County
Emergency Management



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Emergency
Management
Home Page

Emergency
Management
Division ▶

Enhanced 9-1-1

Fire Prevention
Bureau

Radio
Communications

Urban Search &
Rescue Task
Force


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Piggyback!

Take a minute to let us know what your training needs are meeting your needs!



Collaborate!

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[Explorer Search & Rescue](#)
Find out how to join!

[Fire Districts](#)

Training

Plans

LEPC

By *collaborating* with the Pierce County & Washington State Depts. of Emergency Mgmt., CPARM, & CREW we *piggybacked* on already scheduled training sessions & other forums and have met with hundreds of intended users.

Businesses:

Puget Sound Energy, Boeing Employee Credit Union (BECU), Expedia, Safeway, T-Mobile, PACCAR, Costco



Public & Private Sector Contingency Planners:

Business Cont. Ctr of Seattle, Motricity, Nordstrom, PEMCO Ins., Premera Blue Cross, Russell Invest. Group, Liberty Mutual, Worldvision, BEST Alliance, Bank of America, Columbia Bank, Univ. of WA



Emergency Managers:

WA State EMD, Pierce County DEM, Univ. of WA



Washington Military Department
Emergency Management Division

Healthcare Providers:

Cascade Blood Serv., Tacoma-Pierce Cty Health Dept., WA State Health Dept., Multicare, Franciscan Health System, WA State Hospital Assoc.



We have *embedded* USGS personnel in the region-wide 2012 Evergreen Earthquake Exercise Series planning process.



We have embedded USGS personnel in the region-wide 2012 Evergreen Earthquake Exercise Series planning process.



In the context of the Evergreen Exercise, USGS also is *collaborating* with the Washington State EMD to assess EHP product usage, enhance, develop, & test products.

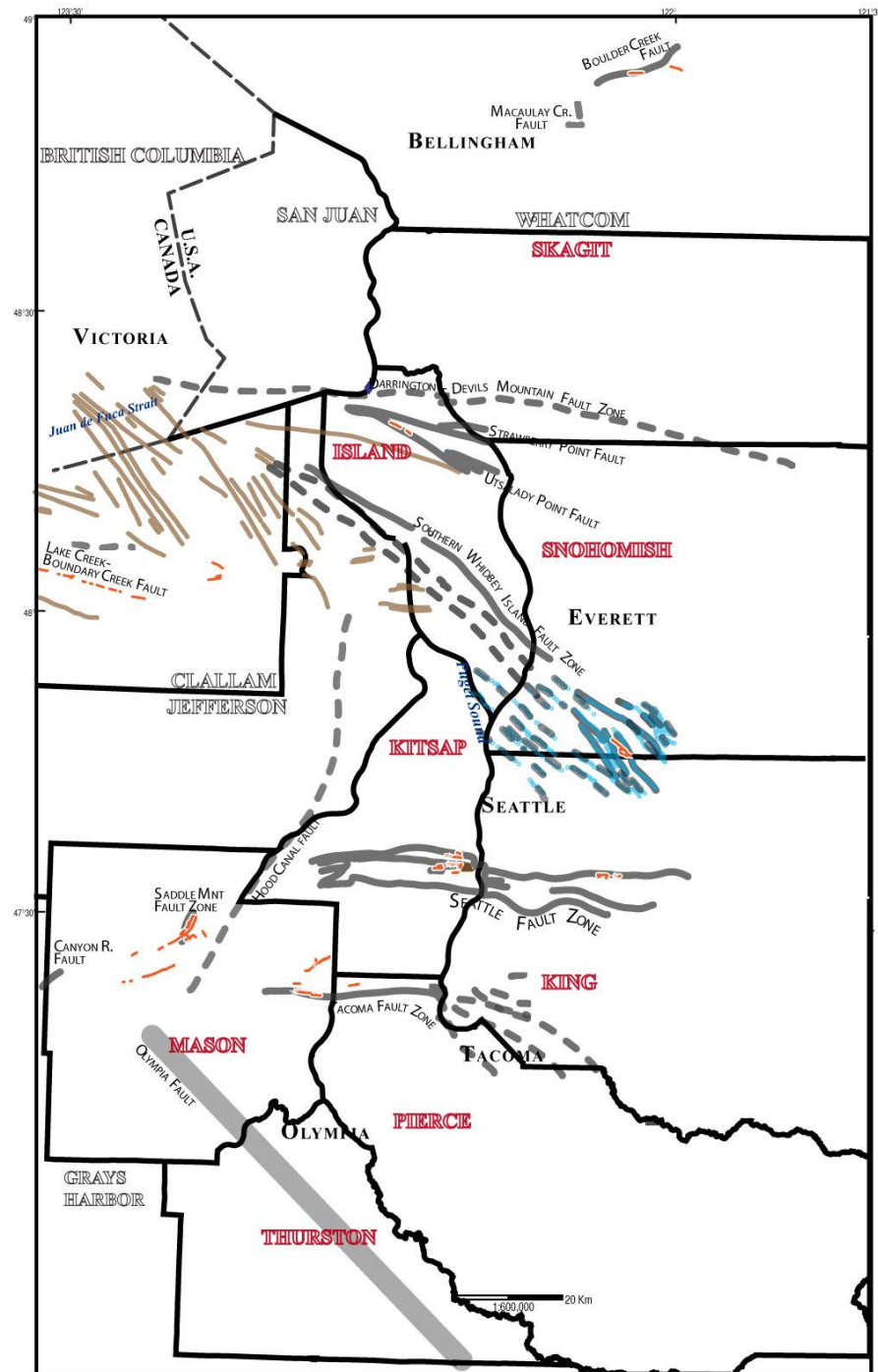


Washington Military Department

Emergency Management Division

Step #1: Learning about county & local level needs.

We listened at Focus Group sessions, with 8 County Emergency Management Departments & their constituents, and a State Agency Liaisons group.



What did we learn?

The Seattle Times

Quake rattles south Puget Sound

Seismologists says a light earthquake shook parts of the south Puget Sound area Tuesday morning.

The Associated Press

MORTON, Wash. —

Seismologists says a light earthquake shook parts of the south Puget Sound area Tuesday morning.

The Pacific Northwest Seismograph Network says the magnitude 4.2 quake occurred at 7:51 a.m. and was centered about 7 miles west of Morton, or about 40 miles south of Olympia.

The quake was widely felt in the Olympia area and north Lewis County, but Lewis County sheriff's Chief Deputy Stacey Brown says she's received no reports of injuries or damage.

3.7 quake under Whidbey Island rattles windows

The 3.7 magnitude earthquake under Whidbey Island came about an hour before most alarm clocks were set to go off, but University of Washington scientists say it should serve as a wake-up call that a much bigger quake is likely in the future.

By **DONNA GORDON BLANKINSHIP**

Associated Press Writer

SEATTLE —

The 3.7 magnitude earthquake under Whidbey Island came about an hour before most alarm clocks were set to go off, but University of Washington scientists say it should serve as a wake-up call that a much bigger quake is likely in the future.

The deep quake came from the same zone that produced the destructive 6.8 Nisqually quake in 2001, which cracked the state Capitol dome and rained bricks down from historic buildings in Seattle's Pioneer Square neighborhood.

"Every 20 to 30 years, we have one at 6.5 or greater," said UW seismology lab coordinator Bill Steele. "It is the most frequent source of damaging earthquakes in the region and it will produce big ones in the future."

Nov. 16, 2010

July 1, 2009

The Seattle Times

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The quake came from the same zone that produced the destructive 6.8 Nisqually quake in 2001, which leveled the state Capitol dome and sent people fleeing from their homes in Seattle's Pioneer Square neighborhood.

"They could have gone a lot greater," said UW seismology lab coordinator Bill Steele. "It is the most frequent source of damaging earthquakes in the region and it will produce big ones in the future."

Nov. 16, 2010

July 1, 2009

We can't rely on the Earth to market for us...

Infrequency of earthquakes presents challenges:

MANY citizens aren't aware products exist!

Convey information in everyday language & images.

Shakemap pn10150611

[Instrumental Intensity](#) [Peak Ground Acceleration](#) [Peak Ground Velocity](#) [Uncertainty](#)

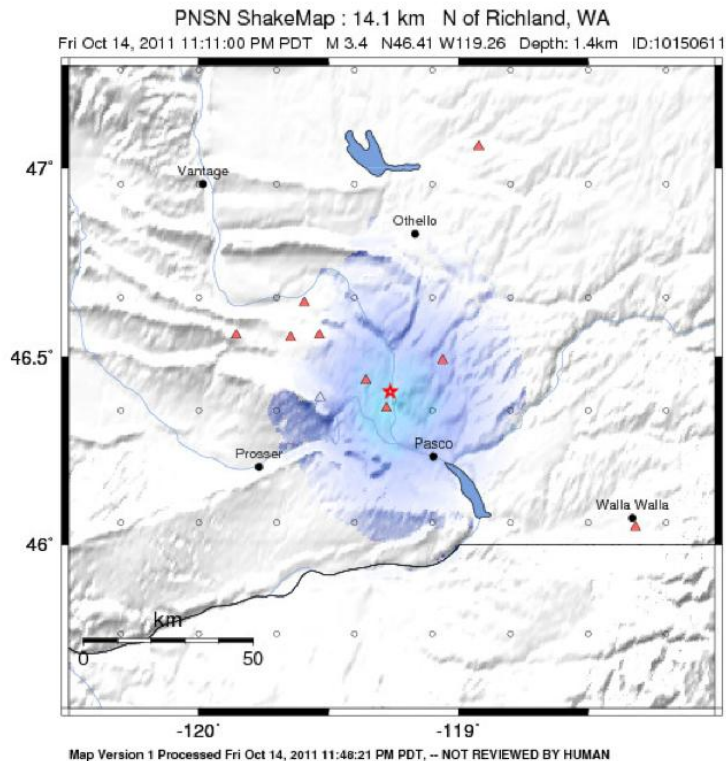
Media Maps

[Decorated](#) [Bare](#)

[Downloads](#)

Instrumental Intensity

Available Formats: [JPG \(117 kB\)](#) || [PS \(333 kB\)](#)



| PERCEIVED SHAKING | Not felt | Weak | Light | Moderate | Strong | Very strong | Severe | Violent | Extreme |
|------------------------|----------|---------|---------|------------|--------|-------------|----------------|---------|------------|
| POTENTIAL DAMAGE | none | none | none | Very light | Light | Moderate | Moderate/Heavy | Heavy | Very Heavy |
| PEAK ACC.(%g) | <.17 | .17-1.4 | 1.4-3.9 | 3.9-9.2 | 9.2-18 | 18-34 | 34-65 | 65-124 | >124 |
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| INSTRUMENTAL INTENSITY | I | II-III | IV | V | VI | VII | VIII | IX | X+ |

Understandable (with effort)...

Convey information in everyday language & images.

Shakemap pn10150611

[Instrumental Intensity](#) [Peak Ground Acceleration](#) [Peak Ground Velocity](#) [Uncertainty](#)

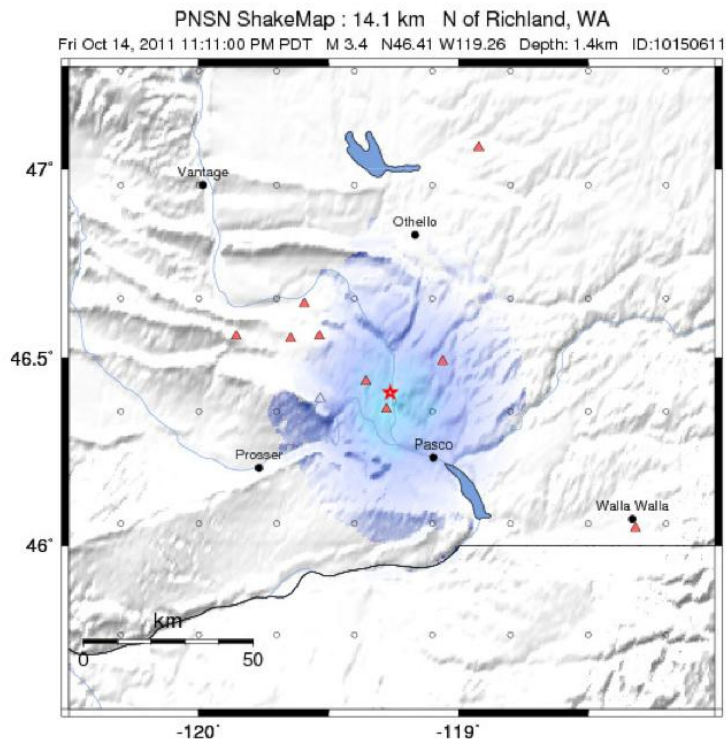
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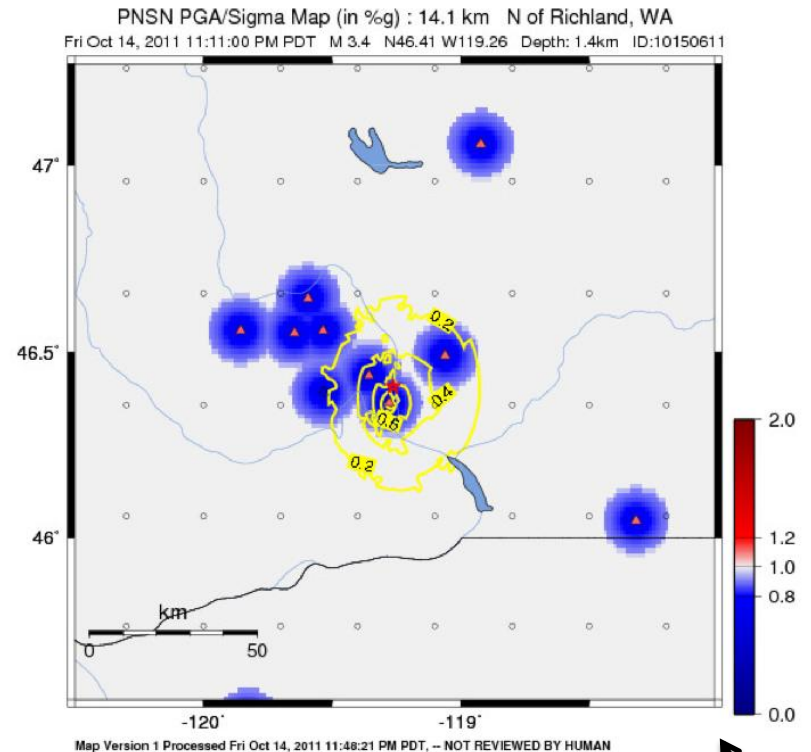
Media Maps

[Decorated](#) [Bare](#)

[Downloads](#)

Uncertainty

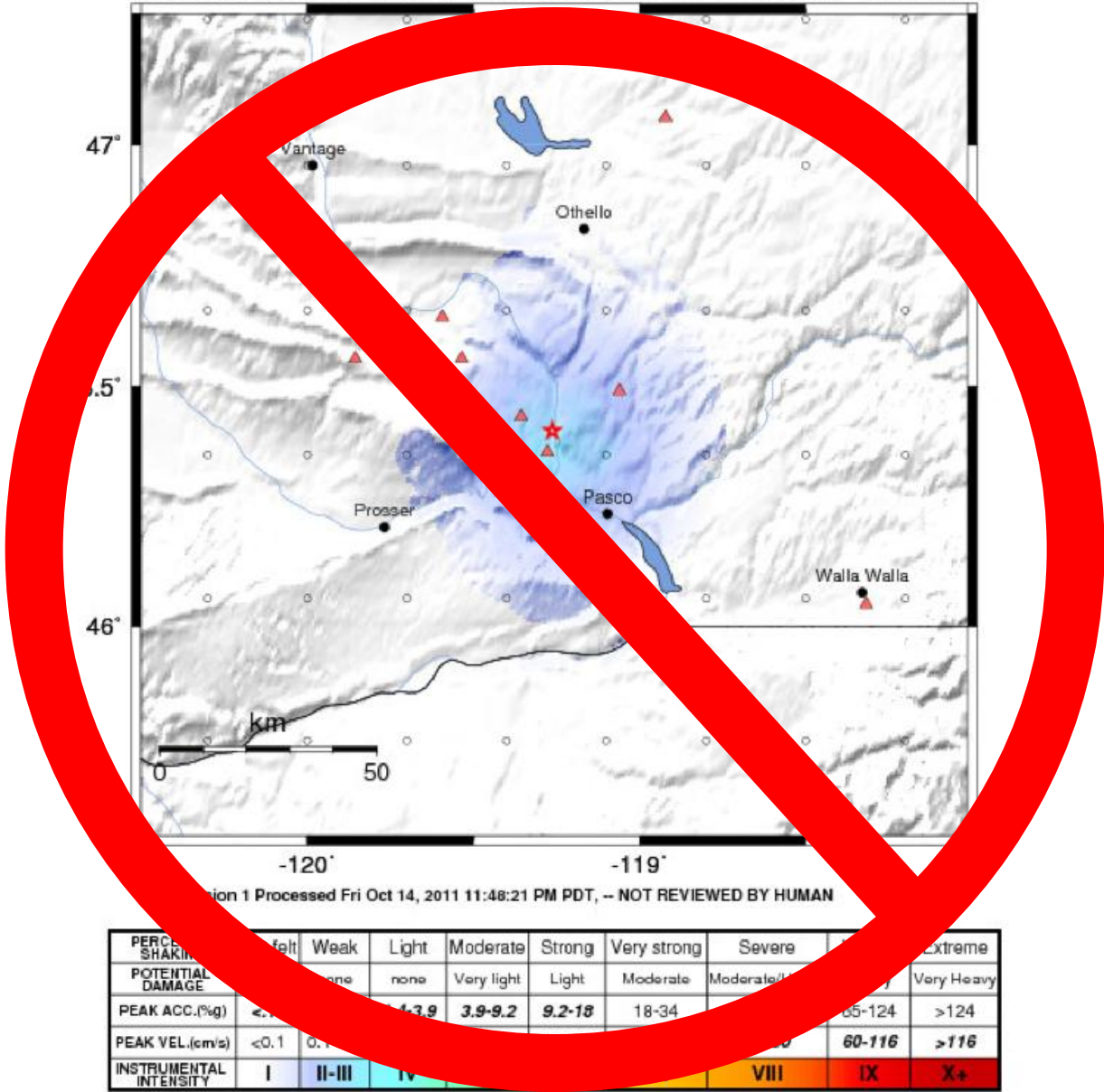
Available Formats: [JPG \(64 kB\)](#) || [PS \(17 kB\)](#)



Understandable (with effort)...NOT!

Convey **IMPACT!**

PNSN ShakeMap : 14.1 km N of Richland, WA
Fri Oct 14, 2011 11:11:00 PM PDT M 3.4 N46.41 W119.26 Depth: 1.4km ID:10150611



Convey **IMPACT!** Use familiar tools.

Complete coverage on

Haiti Earthquake

FOLLOW THIS TOPIC +

[view all special coverage](#)

HAITI EARTHQUAKE



Maxi journeyed to northern Haiti to see Joseph, the only person who could understand her ordeal. They were not friends previously, but after surviving the earthquake together, they had become like sisters.

[FULL STORY](#)

Buried alive for days, survivors reunite

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DEGREES
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PROFESSIONALS.

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Latest Video



Haiti stuck in its own rubble



Haiti recovery stalled?



Orphanage director recalls Haiti quake



Doctor returns to Haiti



"I've Never Been This Strong"



Quake survivors remember



Hope emerges from the rubble

ADVERTISEMENT

Latest news

• A year on, Haitians cope with wretched memories

Opinion

• A Haiti adoption; a new chance in the U.S.

Impact Your World



Use familiar tools.



Pierce County
Department of Emergency Management
Information Portal

Joan Gomborg
06.09.10

Weather Report | [logout](#)

Select an Application...

- **Incident Command System (ICS)**
Incident Command System electronic forms. Fill out ICS Forms and produce reports online.
- **Infrastructure Threat System (ITS)**
Critical Infrastructure facilities throughout the County grouped by nationally standardized sector names. View maps, photos and tabular data for each location.
- **Map Gallery**
Map Gallery contains an extensive collection of standard emergency management maps for quick and easy printing.
- **Rapid Access to Resources (RAR)**
Search for emergency resources throughout the County.
- **School Threat System (STS)**
Emergency response information for SCHOOLS. Each school location contains text, images, maps and floor plans.

Department of Emergency Management
Emergency Management Division
Phone: (253) 798-6595

This site is optimized for Internet Explorer 8

Mapping...

- **MapView**
Online orthophotography mapping for First Responders

Links...

- **Pierce County**
 - Join the Pierce County Warning, Alert and Response Network ([PCWARN](#))
 - Crisis Communications for Pierce County
 - Department of Emergency Management - Public Web Site
 - Pierce County Neighborhood Crime
- **State**
 - WATrac - Tracking Resources, Alerts, and Communications
 - Northwest Interagency Coordination Center (NWCC)
 - Washington State Emergency Management
- **Federal**
 - American Red Cross
 - American Red Cross - Safe and Well List
 - Emergency Response Guidebook (ERG2008)
 - FEMA
 - National Fire Information Center (NFIC)
 - NOAA - Advanced Hydrologic Prediction Services
 - NOAA - nowCoast - Web Mapping Portal for Real-Time Coastal Observations
 - NOAA - NWS Seattle/Tacoma
 - NOAA - NWS NW River Forecast Center
 - NOAA - NWS Weather RADAR
 - USFA - Haz Mat Guide for First Responders
 - Chemical Page Search Engine
 - USGS - Real-Time Streamflow Data for WA

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Use familiar tools. Products easily integrated.

Pierce County
Department of Emergency Management
Information Portal

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06.10.10

Department of Emergency Management
Map

Home | Map Gallery | View/Print Maps | Mapping Links | Printers | What's New | Help | Logout


Pierce County Map Gallery

The Pierce County Map Gallery allows you to easily print and view standard County maps. Click [here](#) to see what's new.

[View/Print Maps](#)[Map View](#)[Mapping Links](#)[Map at Address](#)[Printers](#)[Custom Signs](#)[Help!](#)[Firefox Plugin](#)

Search for a Map:

Most Recent Map

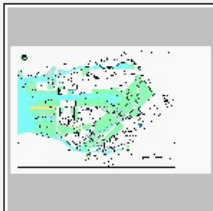


Monitored River Watch Areas


Featured Map Subjects

- [Educational Institutions](#)
- [Katrina USAR Preparation](#)
- [Operation Maps](#)
- [River Watch](#)


Featured Maps




[Port Facilities PDF](#)



[Plate 03](#)



[1528 354th St E.](#)



[Road Closures 1230 11/7/06 West](#)

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Services

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- NOAA - NWS Seattle/Tacoma
- NOAA - NWS NW River Forecast Center
- NOAA - NWS Weather RADAR
- USFA - Haz Mat Guide for First Responders
- Chemical Page Search Engine
- USGS - Real-Time Streamflow Data for WA

Products easily integrated. Consider scale!

Pierce County
Department of Emergency Management
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[Reset](#)

Most Recent Map
[Monitored River Watch Areas](#)

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Featured Maps

[1528 354th St E.](#) [Road Closures 12/30/06 West](#)

Mapping Portal for
Aviation
Forecast Center
ADAR
or First Responders
Engine
Inflow Data for WA

BROWNS POINT WATER RESCUE EXERCISE
JUNE 7, 2010

Legend

| | |
|-----------------------|-----------------------------|
| COMMAND POST | 2 - SURFACE WATER RESCUE |
| REHAB | 3 - SWIM/SEARCH |
| USCG/LZ | 4 - PERSON OVERBOARD - USCG |
| SAFETY BOAT | 5 - LE - TOWING/DEANCHORING |
| TFD BOUY | 6 - DIVE |
| ORANGE BOUY | 7 - SEARCH PATTERNS |
| PARTICIPANT PARKING | 8 - VESSEL FIRE/DEWATERING |
| MEDIA PARKING | 9 - SAFETY INSPECTIONS |
| JIC | 10 - NAVIGATION STATION |
| 1 - PT X-FER BOAT/PWC | PORT A POTTIES |
| | 800 ft Boom |
| | LANDING CRAFTS |

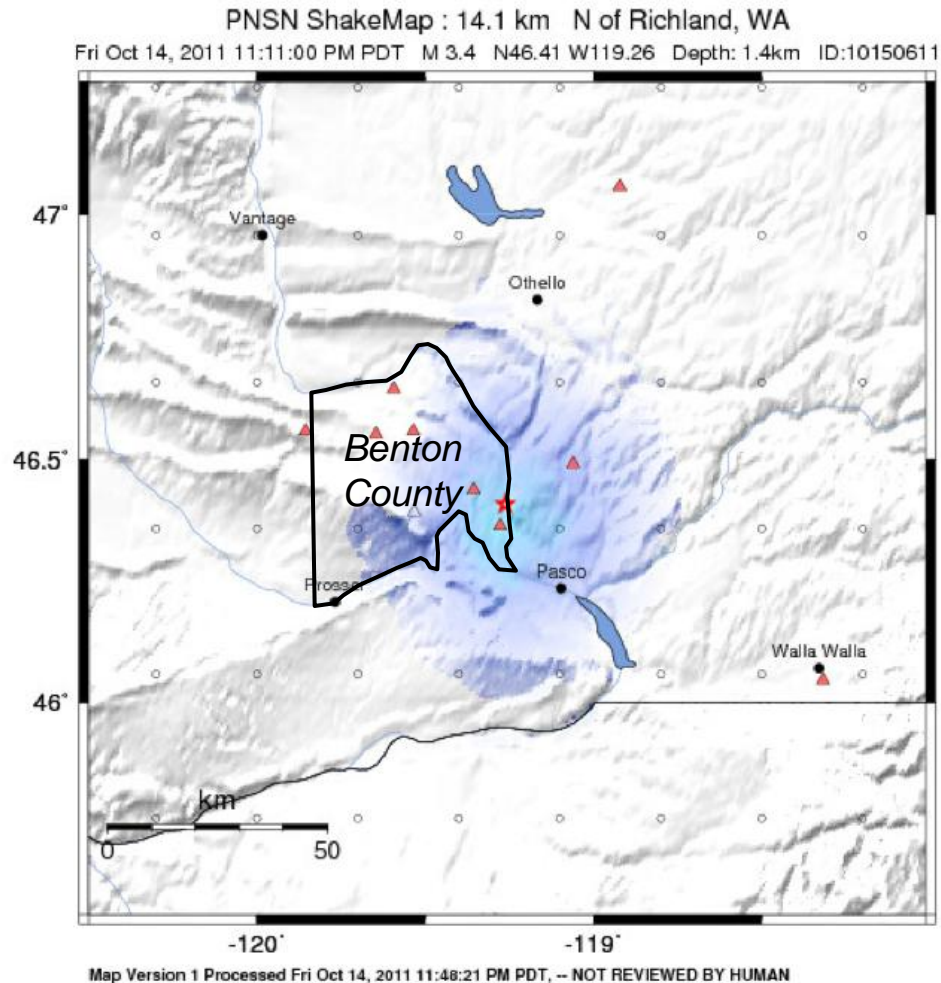
The map features are appropriate and are intended only to provide an indication of east feature. Additional areas that have not been mapped may be present. This is not a survey. The County assumes no liability for any errors or omissions in the data. All data is provided AS IS AND WITH ALL FAULTS. The County makes no warranty of fitness for a particular purpose.

0 0.015 0.03 0.045 Miles

Pierce County
Geographic Information Services

Perspective is LOCAL!

Scale needs to be local.

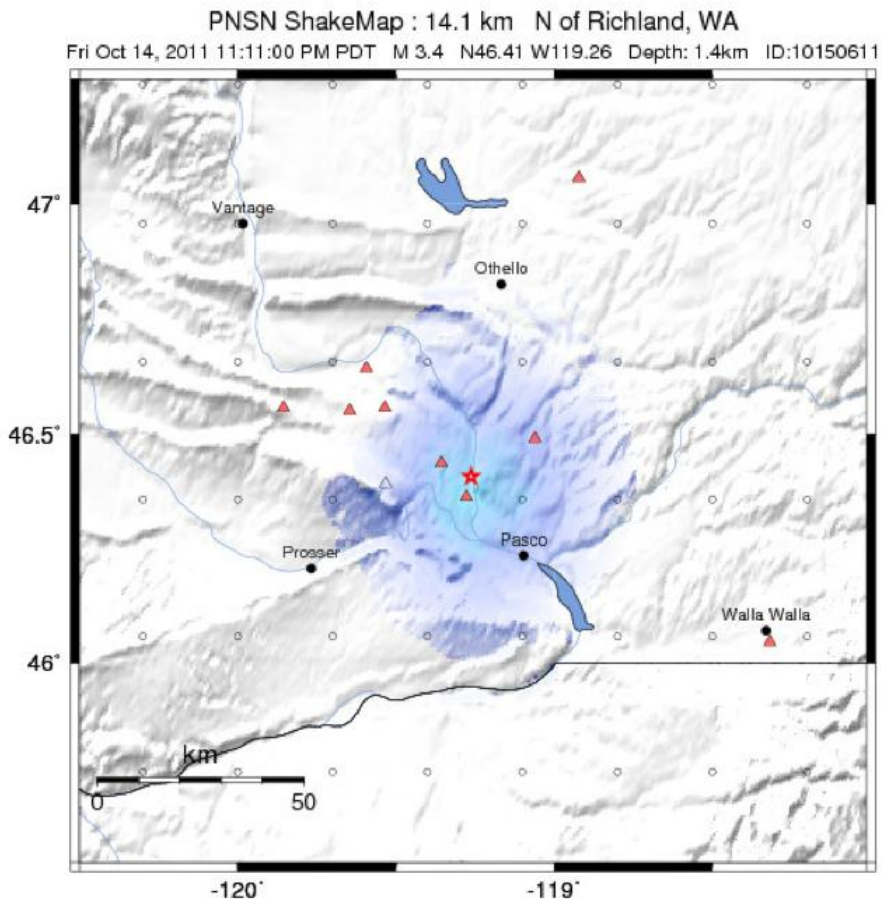


| PERCEIVED SHAKING | Not felt | Weak | Light | Moderate | Strong | Very strong | Severe | Violent | Extreme |
|------------------------|----------|---------|---------|------------|--------|-------------|----------------|---------|------------|
| POTENTIAL DAMAGE | none | none | none | Very light | Light | Moderate | Moderate/Heavy | Heavy | Very Heavy |
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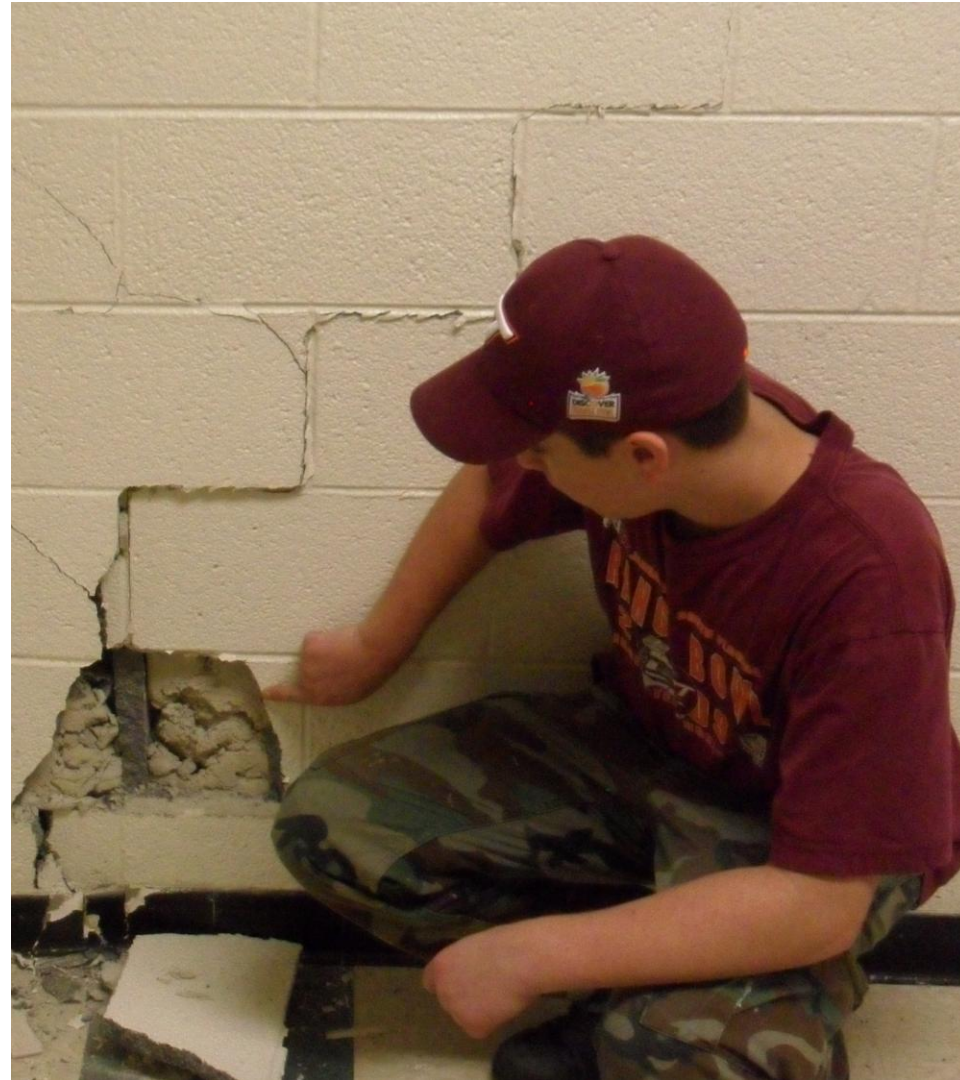
Cultural difference – trust boots-on-the-ground observations,



Cultural difference – trust boots-on-the-ground observations, not remotely acquired ones & models.



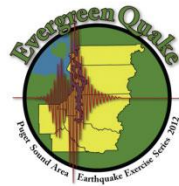
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What to do?

We hypothesize that products developed by BOTH users
& developers will more likely be used.

We're holding webinars to address awareness.



EVERGREEN QUAKE EXERCISE SERIES 2012
TRAINING OPPORTUNITY

Webinar: A Practical Guide to Pacific Northwest Earthquakes

For the Evergreen Quake Exercise Series

Presented by [US Geological Survey](#)

Date:

9-10 AM, September 21 & 22, 2011 *

*This webinar will be presented twice both beginning at 9AM.

Course Description:

Effective response and recovery relies on informed and realistic understanding of the immediate past and high probability future events. This webinar will provide some of this understanding relevant to the 2012 Evergreen Earthquake Exercise Series. Three topics will be covered:

- (1) lessons for Northwesterners from recent global earthquakes,
- (2) a scientific, but practical, overview of the Exercise scenario, and
- (3) new tools for enhancing earthquake preparedness and response.

Target Audience:

Evergreen Quake Exercise series players.

Point of Contact:

Adina Pease

[FEMA Region 10](#)

Adina.Pease@dhs.gov

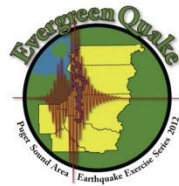
(425) 487-4672

2012 EXERCISE SERIES: FE JUNE 5-6 ~ LOGISTICS DRILL JUNE 12-14 ~ RECOVERY TTX AUGUST 15 & 22

Visit the Evergreen Quake Exercise Series 2012 Calendar for additional training opportunities by clicking [here](#).

We contend that products developed by BOTH users & developers will more likely be used.

We're turning this into an online training.



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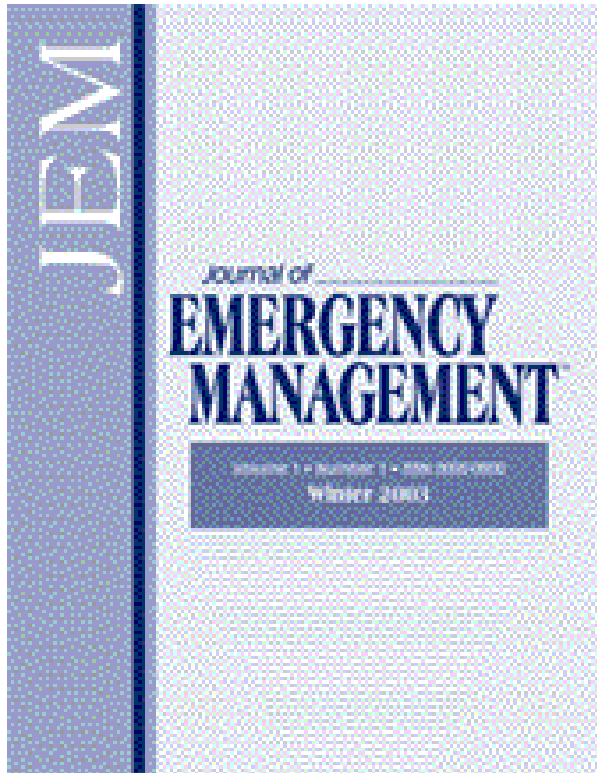
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Washington EMD personnel joined the USGS Earthquake Notification Service development team.



We're testing our approach in various venues....



A Collaborative, User-Producer, Assessment of Earthquake Response Products

Joan Gomberg, US Geological Survey, Seattle, Washington
Allen Jakobitz, Washington State Emergency Management
Division, Camp Murray, Washington

Introduction

We contend that agencies or individuals focused on addressing immediate societal needs sometimes address only perceived, rather than truly known needs. Sometimes too, the fulfillment of the targeted need is simply assumed or only indirectly assessed, rather by directly polling the intended beneficiaries. Our final contention is that activities and...

We're using the Evergreen Exercise to test new messages & delivery mechanisms.



ShakeMaps

What are they?

Most ShakeMaps are automated maps of earthquake-generated ground motions and shaking intensity, produced within minutes after the occurrence of significant earthquakes. The maps are derived from measurements recorded by networks of sensors deployed throughout the US and globally. Intended applications of ShakeMaps include post-earthquake response and recovery, public and scientific information, and preparedness exercises and disaster planning by federal, state, and local organizations both public and private. The U.S. Geological Survey Earthquake Hazards Program and its partner regional seismic network operators produce ShakeMaps.

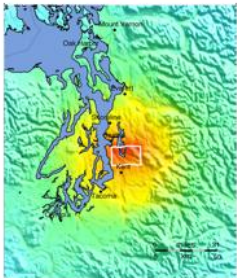
'Scenario' ShakeMaps display the same information as those generated for actual earthquakes, but for hypothetical earthquakes. The ground motions expected from an earthquake with specific characteristics are calculated using models of the earthquake itself, the materials that the seismic waves travel through, and the governing physical processes. Real earthquake ShakeMaps also employ models to interpolate between measurements, so that both types of ShakeMaps present simplified and imperfect versions of the true ground motions.

ShakeMaps displayed in units of 'intensity' provide generalized views of the likely impacts of an earthquake. Values of intensity measure the severity of the shaking strength in terms of its potential to impact the built environment and human perception, under very general conditions. Other measures of ground shaking reflect what instruments might record directly, and might be used as input for more quantitative estimates of earthquake impacts. Examples include assessments of the performance of specific buildings and other structures by engineers, or inputs to risk assessment tools like FEMA's HAZUS program.

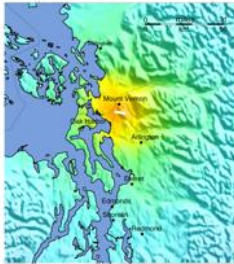
2012 Evergreen Earthquake Exercise ShakeMaps

This webpage provides links to background information and tools for downloading the 5 scenario ShakeMaps used for the 2012 Evergreen Earthquake Exercise Series. To download one of these ShakeMaps, click on the image of the ShakeMap desired and a download page will open. You may select from several file formats and measures of ground shaking ('intensity' is shown below); click here for some additional instructions about how to use these files **[NEED TO ADD THIS]**. To learn more about the fault that generates the particular scenario earthquake and other related geological tidbits, click on the title above the ShakeMap image below.

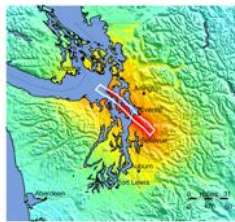
[M6.7 Seattle](#)



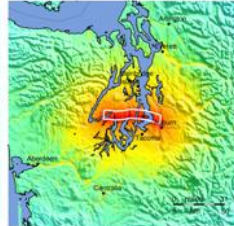
[M5.7 Darrington-Devils Mtn](#)



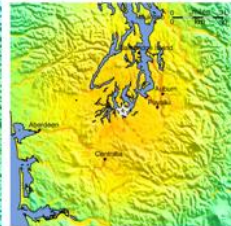
[M7.4 South Whidbey Island](#)



[M7.1 Tacoma](#)



[M7.2 Olympia-Nisqually](#)



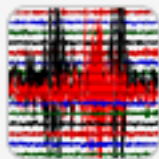
Have a ShakeMap Delivered (Pushed) to You!

You can have ShakeMaps delivered to you whenever one is generated, instead of having to look for them. Click here for information about what methods you can use to do this, and how to set it up. **[NEED TO ADD THIS]**



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ShakeMaps

Maps depicting shaking intensity



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Your Suggestions?